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## ***How to measure entrepreneurial learning through the entrepreneurial intention***

*By Rodrigo Varela V., Ph. D., Juan David Soler L. and Alba Tatiana Peña G*

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*This article complements the research published in 2009 "Entrepreneurial intentions at Universidad Icesi" (Varela, Martinez and Peña (2009)) which measured the intentions and the entrepreneurial attitudes of Universidad Icesi's students.*

*It describes in further detail Universidad Icesi's students population regarding perceptions, values, attitudes and intentions towards entrepreneurship and the process of business creation. It allows understanding the entrepreneurial activity in university students, identifying differences between careers, gender, level of studies, professional and familiar background. It also provides information about the interests the students have in working in family enterprises and the motivations the students have to become entrepreneurs. But mainly, the study helps evaluate the impact of the educational model on the students towards entrepreneurship. Additionally, it shows the key areas that need improvement in the educational model as well as new concepts that should be incorporated.*

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### ***Keywords***

Entrepreneurship; Entrepreneurial Education; Entrepreneurial Intention; Universidad Icesi; CDEE.

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## ***Introduction***

Entrepreneurial education has become something very common at the university level. Through the years many institutions had developed their own educational programs and experiences and several authors have done studies trying to identify the best educational procedure to develop entrepreneurs (Kuratko, 2004; Gibb, 2004; Kirby, 2002; Ventakaraman, 2003; Gibb, 2010; Solomon, 2010; Filion et al, 2010; Varela, 2010; Oosterbeeb et al, 2010; Hulsink & Rauch, 2010)

At the Universidad Icesi, entrepreneurship education for undergraduate students has been in place since 1985, and the Center for Entrepreneurship Development has been in charge of the formation process, developing through the years, different approaches for the curricular and the extracurricular activities. Entrepreneurship is a distinctive seal of the University and many activities are open for the students to consider and to develop an entrepreneurial career.

But models, ideas, pedagogy, approaches, activities had to be measured in some way to get a basic feeling of the effect they may have in the students. The students at the University could be classified in four different levels:

- Those that see, wish and are willing to work to become entrepreneurs
- Those that do not see or do not wish or are not willing to work to become entrepreneurs
- Those that are already acting entrepreneurs
- Those that do not know at all that an entrepreneurial career opportunity does exist

Given that entrepreneurial competences may materialize, in an enterprise, just in the medium and long range of the professional career, it's necessary to find a way, in the short range, to measure the effect that entrepreneurship education may have in different elements of the competences, attitudes, values, beliefs, thoughts, aptitudes, knowledges, etc.

At Universidad Icesi, most of the students had in their curricula required and elective courses in Entrepreneurship, but in some of the programs, either by design or by the level of development the students had not taken, at the time of this research, any formal course in Entrepreneurship. However there are many extracurricular activities through the year: Entrepreneur Fair (EXPOICESI), Latin American Congress on Entrepreneurship, Conferences, Seminars, Bulletins, Poster, Induction to new students, etc.; that in a way or another build awareness and knowledge about entrepreneurship among all our students.

The goal of this research was to measure some elements that will allow the comparison among: schools, programs, gender, age, level, entrepreneurship courses, existence of entrepreneurship in the family and some other variables.

### ***Conceptual Framework***

For educational purposes the Center uses a model adapted from Shapiro's model, and consider that the entrepreneurial process that has to happen to transform a non entrepreneur in an entrepreneur has six stages which are presented in Table # 1.

TABLE # 1 – ENTREPRENEURIAL PROCESS STAGES

Motivacional stage	➡	Taste/ Willingness
Situational stage	➡	Business opportunity
Decision stage	➡	Decision to go ahead
Analytical stage	➡	Business Plan
Economic stage	➡	Resource management
Operative stage	➡	Operational management

Our educational model cover all six stages, but most of the effort is done on the first four ones. The model consider that it is not possible to have an enterprise, and therefore be an entrepreneur if he (she) does not ever had the desire to be one, so the “Taste” or the “Willingness” or the “Intent” or the “Planned behavior and reasoned action” or the “Entrepreneurial Career Plan” are necessary, but no sufficient conditions to achieve the dream and the entrepreneurial vision proposed by Filion (1991).

Entrepreneurial intentions of undergraduate students has been studied by many authors (Audet, 2004; Boissin & Emin, 2006; Kolvereid, 1996; Tkach & Kolvereid 1999, Filion, L'Heureux, Kadji - Youleua, Bellavence, 2002; Davidsson, 1995; Hulsink & Rauch, 2010; Gasse & Tremblay, 2010; Varela, 2010)

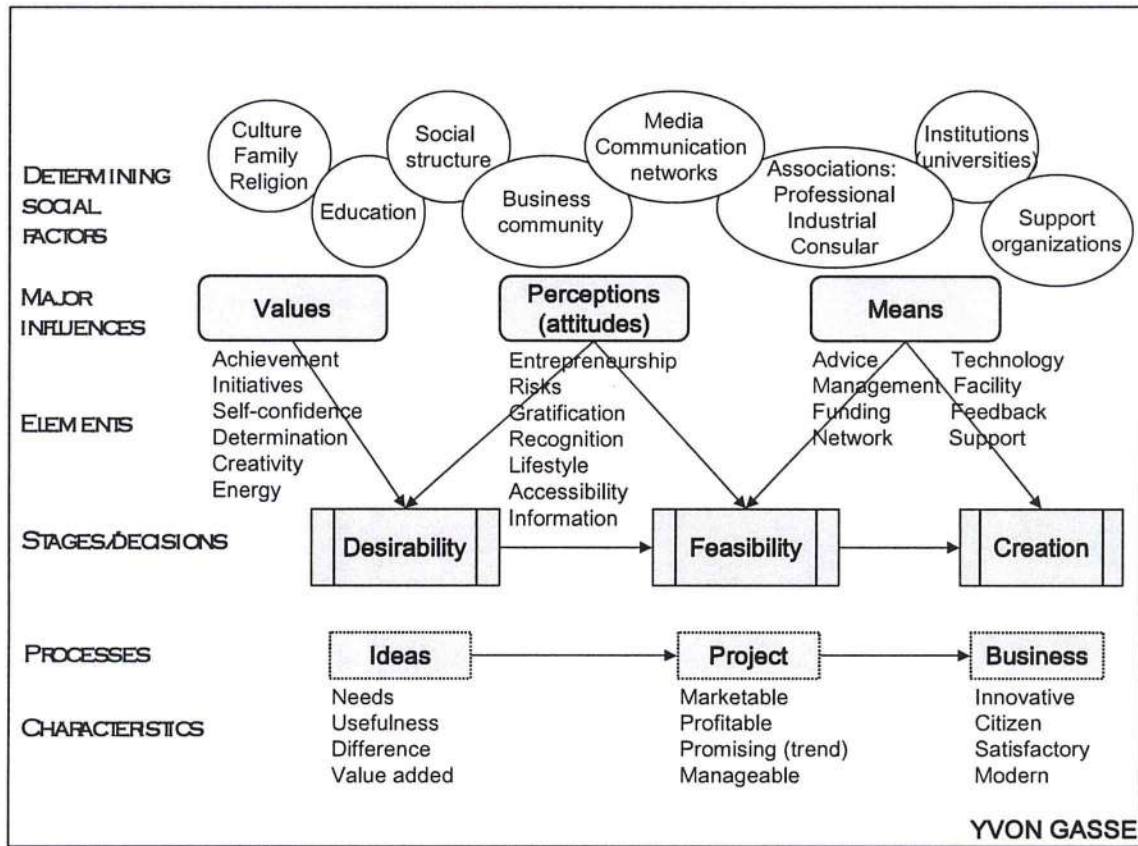
The theory of reasoned action and planed behavior of Ajzen (1991) has been supporting many other studies: Shapero, Sokol, 1982; Davidsson, 1995; Krueger 1993; Krueger and Carsrud, 1994; Krueger, Reilly and Carsrud, 2000; Reitan, 1996, which had helped the development of this approach.

Shapiro and Sokol (1982) clearly showed that becoming an entrepreneur requires a change in life style and there are two basic perceptions to define the change on life style: the perception of desirability and the perception of feasibility. Both are affected by the culture that has the potential entrepreneur, or in other terms by their values, beliefs, attitudes, skills, abilities, knowledge, ways of acting, etc. (We call them in the Icesi's entrepreneurial educational model, the Entrepreneurial Competences).

Gasse and Tremblay (2009, 2010) developed a conceptual model, which enriches Shapiro's one, keeping the idea that the business process is a multivariable process affected by "Desirability" and "Feasibility", but adding a third element that they called "Creation", which relates to the accumulation of resources that allow the entrepreneurs to transform a dream into a real and operating enterprise.

Figure No. 1 presents Gasse Tremblay's Model (2009), which indicates the complexity of the interactions between the variables and the difficulty that exists in a formal educational process to meet, for each student, and for each situation, all these variables. Tremblay and Gasse (2009) clearly indicate that this model is designed to facilitate the understanding of the problem and not to predict entrepreneurial actions.

**Figure # 1 Gasse-Tremblay Model**



**Research Design**

The purpose of this research was to measure the differences in values, attitudes, knowledge, conceptions, perceptions, aptitudes, etc. related to entrepreneurship among Icesi's students that had taken courses in entrepreneurship and those that had no taken them; knowing that both of them are affected by extracurricular activities done by the Center for Entrepreneurship Development, and that the results will not be just the effect of the courses.

Taking as basic methodological element Gasse & Tremblay instrument, some adjustments were made to include some specific elements that were important for the University program.

The potential sample was defined as follows:

- If the program had mandatory entrepreneurship courses, the questionnaire was applied to the students attending those courses at the highest level.
- If the program hadn't required courses of entrepreneurship or the student had not reach the level in which the course will be offered, the questionnaire was applied to the students that were in the most advanced two semesters of the program.

The questionnaire was answered by 523 undergraduate students from 20 different programs. Unfortunately not all questionnaires were completely answered and in some question some students did not understand the logic of the questionnaire and it was necessary to exclude some answers in some questionnaires keeping all the ones that were logically answered. The test for statistical value of the sample, after the adjustment for invalid or incomplete questions, gave a confidence level higher than of the data was tabulated and processed using SPSS.

## ***Results***

### Demographic aspects

Table # 2 present the main demographic elements of the sample, which in age and gender reflects quite well the university universe. Most of the entrepreneurship courses are in the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> semester, thus from the 222 students graduating in 2010, 2011 a total of 156 were taking required courses. All the other students came from programs that either do not have required course or the development level of the program has not reached the semester in which the courses are offered.



**Table # 2 – Demographic Aspects**

Age	< 21 years	241	46,17%
	Between 21 and 24 years	246	47,13%
	> 24 years	35	6,70%
Gender	Male	219	42,12%
	Female	301	57,88%
Expected graduation year	2010	15	2,87%
	2011	207	39,66%
	2012	117	22,41%
	>=2013	179	34,29%
School	School of Management and Economics Sciences (SMES)	283	54,11%
	School of Engineer (SE)	70	13,38%
	School of Law and Social Sciences (SLSS)	60	11,47%
	School of Natural Sciences (SNS)	89	17,02%
	School of Health Sciences (SHS)	21	4,02%
Family Enterprise	Yes	312	60,70%
	No	202	39,30%
Entrepreneurship Courses	Yes	171	32,70%
	No	352	67,30%
Job Experience	No	155	30,10%
	Yes, Temporal	289	56,12%
	Yes	71	13,79%
Project or enterprise creation in studies	No	322	63,14%
	Yes	188	36,86%
Semester	1-4	163	32,34%
	5-8	269	53,37%
	9-12	72	14,29%

## Perceptions and Beliefs

To evaluate the students perceptions and beliefs about entrepreneurship, the questionnaire presented several statements and the students selected the ones that better fit with their perception.

The three most common perceptions about entrepreneurship were: Creation of an enterprise or an organization (85.1%), organizing and operating its own company (67.8%), Innovative action oriented to improvement (64.5%); and the three least common perceptions were: Creation of an NGO or a non for profit organization (17.6%), Intention to carry on an activity (26.7%), taking risk to do something new (35.3%). There were differences by Schools in the number of responses to each interpretation but not in terms of the relevance of each one. The same behavior was shown with age, and gender. No significative difference was detected between students that had taken courses and students that had not taken the required courses.

When the students were asked to grade from 1 to 7 the possibilities of applying the entrepreneurial culture in different professional activities, the highest perceptions were given to: Entrepreneur (6.54), Independent professional (6.34) and the lowest one to government employee (3.44), NGO employee (4.3) and big company employee (4.31). The trend was the same for age, gender, course taken or not, school. In all the cases the small and medium size employment was considered a better place to use entrepreneurial culture than the big company employment.

Other perception that was important to review was their belief about some of the most common entrepreneurial myths. Very few did consider that "entrepreneurship is based on luck" (4.4%), that "only inventors may become entrepreneurs" (7.12%), that "money is the main factor for entrepreneurship"

(27.1%). But unfortunately still too many believe that the entrepreneurs are born (36.6%) or that “the entrepreneurs is just an intrepid person that do not analyze or plan their actions” (47.1%).

By schools some interesting results came about: the engineering students were the ones with the highest percentage believing the “inventors myth” (16.1%), the health student were the ones with the highest percentage believing the “born myth” (55.56%) and the Law and Social Sciences were the ones with the highest percentage believing “the money myth” (36.4%).

In term of the reduction of the belief of the myths, the students taken the courses did not show better results the other ones.

### **Feasibility to business creation**

In this aspect the students were asked to categorize the most important barriers they consider in the Colombian environment affecting the business creation process. The least important barrier were: lack of stimulus from the social environment, red tape to set up and formalize a business, the lack of profitable opportunities. The important ones were: lack of financial resources, lack of knowledge and experience in the specific activity and the economic environment.

In terms of the variables that affect the development of the entrepreneurs and of the enterprises they consider that the variables that have the most significant effect were: personal characteristics, the positive environment for innovation, the easiness to access resources, the motivation toward entrepreneurship and the educational system. The less significant ones were: the political situation, the social recognition process for entrepreneurs and the economic conditions.

### **Desirability to Business Creation**

To measure this variable the first element was to identify the options they see in their professional career. As indicated in table # 2, even though 99.2% will be employee in some periods of their professional career, its important to observe that 91.9% consider they will be entrepreneur and 87.1% consider that they will be independent in some periods of their professional career. These results are very positive to the educational model, because it has been designed as a two way model: be ready and well trained to be an excellent employee full of entrepreneurial spirit and be ready and well trained to be a innovative entrepreneur or an independent professional.

In the Health Science School the results are higher in all the options, except in the one related to be entrepreneurs, but they show an 80% orientation. It's important to mention that they were just in 3<sup>rd</sup> semester. The lowest result in the entrepreneur and independent categories are in the Social and Law School. There were not significant differences by gender or by taking the courses.

The second element used was the motivation behind its decision to be an entrepreneur or to be independent. 64% of them were motivated by the "possibility to build stability in its professional future", 55.5% consider "it's as a personal realization" and 51% consider the "job generation" as their main motivations. The least important motivations were: "face a challenge" 34.2%, be my own boss (35.5%) and "making money" (47.8%). Only in the Health School the motivation "be my own boss" was above 50% and only in the Health School the "making money" was below 35%. Women ranked higher than men in "stability for my future" (67.1% vs 60.4%). The student taking the courses ranked higher in all the motivation, that the ones that are no taking the course.

The third element used were the self evaluation of values and attitudes considered by the literature as important to entrepreneurship: achievement, determination, initiative, self-confidence, creativity, lifestyle, oriente to

entrepreneurship acknowledgment, gratification, risks and acces to information. These values and attitudes were evaluate with different statement with a Likaert scale, where total agreement and “7” was total disagreement. The different statement associated to each one of the values and attitudes were integrated. Table # 3 show the results.

**Table # 3**

	Total	Gender	
	Icesi	Male	Female
Achievement	1.97	2.01	1.94
Determination	2.40	2.48	2.34
Initiative	2.93	2.94	2.92
Self confidence	2.09	2.10	2.08
Creativity	2.46	2.46	2.46
Lifestyle oriented to entrepreneurship	2.13	2.21	2.07
Acknowledgment/Recognition	2.17	2.24	2.12
Entrepreneurship	2.93	2.90	2.93
Gratification	2.07	2.10	2.06
Risk	2.43	2.45	2.41
Acces to information	2.60	2.56	2.75

The self evaluation results shows that in all the values and attitudes the students present positive behaviors. The ones with the best self evaluation are: achievement, self confidence, gratification.

One very distinctive result is the gender comparison, because men self evaluated better in practically all the elements. The students of the School of Natural Science had the best self evaluation in all the values and attitudes, even though they still had not taken courses in entrepreneurship.

Other important elements of perceptions that was measured are shown in table # 4. This table uses also the Likaert scale in terms of total agreement (Level 1) or total disagreement (Level 7) with the statements.

**Tabla # 4**

	<b>Icesi</b>	<b>Male</b>	<b>Female</b>
Its possible to develop the entrepreneurial spirit and the entrepreneurial behavior by academic activites.	2.24	2.20	2.26
The activities done by the university help in the development of the entrepreneurial spirit and the entrepreneurial behavior.	2.41	2.44	2.39
Society stimulaties and support enterprise creation and entrepreneurs.	3.43	3.43	3.43
Society tolerates entrepreneurial failure.	4.08	4.06	4.12
Work experience will hep in the entrepreneurial career	3.32	3.31	3.33
Your academic program should include more activities oriented toward entrepreneurship.	2.27	2.26	2.28

As shown, there are very positive answers to the need and role of the university in themes of entrepreneurial spirit and entrepreneurial behavior development.

As in the previous research there is a special contradiction because in one side they consider that society is a 3.4/7.0 positive about supporting and stimulating people to become entrepreneurs, but is 4.08/7.0 in terms of tolerating entrepreneurial failure.

### **Education**

The other set of elements that came from this research are the ones related to the educational model and educational processes used at the university in relation to the extent they have influenced the intention and the vision toward an entrepreneurial career.

Table # 5 present the main perception about the value of different methodological aspects. Again using a Likert a scale with "1" meaning very positive effect and "7" very negative effect. The results are very good the educational model.

**Table # 5**

	<b>Icesi</b>	<b>SMES</b>	<b>SE</b>
Conferences	2.07	1.96	1.99
Views of a teacher	2.21	2.16	2.01
Team work	2.22	2.20	2.17
Business simulation	2.00	1.76	2.14
Classmate opinions	2.61	2.55	2.67
Guest entrepreneurs	2.00	1.85	1.90
Academic exercises	2.87	2.82	2.87
Readings	2.59	2.54	2.66
Workshops	2.51	2.43	2.41
Extracurricular activities	2.06	1.96	2.04
Business Plan	1.89	1.72	1.83

Its interesting to note the value that students taking the entrepreneurship courses (SMES and SE) gave to the Business Plan Exercise, to the Entrepreneurs Guest and to Business Simulations in Latin activities conferences and extracurricular activities are also well recognized.

In the other side academic exercises (home works), classmate opinion and even workshops get the least recognition as a productive tool toward entrepreneurship, but the results are good (below 3 in a 1 to 7 scale)

These results, combined with the ones in table # 6 shows, at least for the Center for Entrepreneurship Development, the pertinence and the value that the students gave to entrepreneurial education, and the positive perception they have on the different methodological schemes the Center is using.

### ***Conclusions and Recomendation***

From the results of this study, some of them showed in this paper, its possible to derive several conclusions and recommendations for the entrepreneurial education activities done around the world and specially about the one done at the Center for Entrepreneurship Development.

- It's important to continue the work toward the development of valid means to measure in the short term, when the students are still students, the effect of entrepreneurship education. The intention and perceptions schemes may be valid ones, but they require wider proofs and developments in different schools, countries and educational approaches.
- The subject of assessment of entrepreneurial competences needs a very deep conceptual and operative research, to be able to have tools to really evaluate educational programs.
- It will be very good to integrate results of intention/perception when the person is an student, with medium and long term behavior to find out the correlation



level and the value of intention/perception as predictors of entrepreneurial behavior.

- It was in general not possible, with our sample and our methodology, to measure the difference in intention/perception among the students that were taking course (required or elective) in entrepreneurship with the ones that were not taking the course. The extracurricular environment, the general level of our students, the message continuously send about entrepreneurship may decrease significantly the positive effect of the course.
- In general the students consider pertinent and useful the entrepreneurial education and they asked for more curricular and extracurricular activities.
- Eventhough the perceptions about entrepreneurship among our students are very much in line with the philosophy of the Center, there are too much work to do to decrease some myths that will stop them from the entrepreneurial career.
- The self evaluation done by the students indicates that the system to develop an entrepreneurial culture: family, society and academic is fulfilling to role of strengthening the performance processes that favor entrepreneurship.
- Perceptions of feasibility and desirability are high in our students, thus we may expect in the long run many new entrepreneurs, and new enterprises coming in action.
- The strategy to work in the two paths: employee – entrepreneur but with high level of entrepreneurial of entrepreneurial culture in both of then, fully agrees with the career orientation of the students.
- There are some teaching activities that need improvement to impact better the formation process of our entrepreneurs, and work has to be done in this direction.
- There are some differences in entrepreneurial behavior in gender, school, program, age, groups, that require a deeper evaluation, to be able to identify the required actions for each segment in order to improve their entrepreneurial behavior.

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